REMARKS

Applicants have amended Claims 1, 8 and 9. Support for the amendment can be found generally throughout the text; specifically, at page 7, line 29 through page 10, line 26 and the Examples. Applicants submit no new matter has been added by the present amendment.

Rejection under the Judicially Created Doctrine of Obviousness-Type Double Patenting

Claims 1, 2, 4-10, 15, 20 and 21 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-8 of U.S. Patent No. 6,649,696.

Applicants herein submit a Terminal Disclaimer in compliance with 37 CFR 1.321(c) and accordingly request withdrawal of this ground of rejection.

Provisional Rejection under the Judicially Created Doctrine of Obviousness-Type Double Patenting

Claims 1, 2, 4-10, 15, 20 and 21 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over 10/013,025. Applicants submit as both applicantions are pending, any action by Applicants with regard to this provisional rejection is premature and under MPEP § 804(I)(B) "if the 'provisional' double patenting rejection in the one application is the only rejection remaining in that application, the examiner should then withdraw that rejection and permit the application to issue as a patent, thereby converting the 'provisional' double patent rejection in the other application into a double patenting rejection at the time the one application issues as a patent."

Claim Rejection - 35 U.S.C. § 103(a)

Claims 1, 2, 4-10, 15, 20 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Obrecht, et al. (U.S. Patent No. 6,127,488) or DE 19707487, each in view of Dammann, et al. or JP 57-212239 or JP 5-17630.

Applicants maintain their previous traversal of this ground of rejection. The present invention is directed to rubber mixtures comprising uncrosslinked, double-bond-containing rubbers (A), crosslinked rubber particles (B), multifunctional isocyanates (C), and a vulcanizing agent wherein the amount of component (B) in the mixture is from 1 to 150 parts by weight and the amount of multifunctional isocyanates (C) is from 1 to 100 parts by weight, in each case based on 100 parts by weight (phr) of the rubber component (A) and wherein said crosslinked rubber particles (B) have particle diameters of from 5 to 1000 nm and swelling indices in toluene of from 1 to 15 and wherein the gel content of the rubber particles (B) is from 80 to 100 wt.%.

Applicants submit, "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (Fed. Cir. 1974)". Applicants also respectfully submit that "in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claims limitations. The teachings or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicants' disclosure." See MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ 2d. 1438 (Fed. Cir. 1991).

Applicants submit that the cited references, alone or in combination, fail to render the present invention obvious and Applicants submit there is no motivation present in the references to combine the representative teachings to arrive at the instant invention. The issue of motivation is properly addressed in terms of one of ordinary skill in the art who has not had access to Applicant's Specification. As set forth by the Federal Circuit in In re Dow Chemical, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988) "the consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art". The proper standard clearly required by the Federal Circuit is that "both the suggestion and the expectation of success must be founded in the prior art, not in

the applicant's disclosure". The fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient cause to establish prima facie obviousness.

Obrecht et al. discloses rubber mixtures prepared from at least one styrene/butadiene rubber gel and at least one rubber which contains double bonds and optionally further fillers and rubber auxiliary substances are in particular suitable for the preparation of vulcanizates having unusually high damping at temperatures of from -20 to +20° C, as well as unusually low damping at temperatures of from 40 to 80° C. However, as recognized by the Office Action, Obrecht, et al. is silent regarding the addition of a polyisocyanate component to the composition. Therefore, the Office Action cites Dammann, et al., JP 57-212239 or JP 5-17630 as disclosing the use of polyisocyanates within rubber mixtures to improve physical properties was known at the time of the invention. Applicants traverse this assertion.

Dammann, et al. discloses an **adhesive** for use with elastomeric substrates such as EPDM roofing materials. The adhesive combines **butyl rubber** crosslinked after polymerization, **halogenated butyl rubber**, **tackifying resin**, and an **isocyanate** partially reacted with a diamine.

JP 57-212239 discloses a mixture of the following components: a rubber consisting of (i) 70 – 95 parts of solid rubber and (ii) 30 – 5 parts of liquid rubber; (B) a masked isocyanate; and (C) Novolac. JP 5-17630 discloses a mixture containing a powdered rubber, a rubber solution containing, in an inert solvent, a hydroxyl-modified liquid rubber and a polyfunctional isocyanate.

As previously discussed in numerous responses, none of the cited secondary references contain a rubber gel. Further, the Examiner has not identified any motivation to combine the polyisocyanates identified in the prior art references with a rubber composition which contains a rubber gel.

Also, Applicants submit the secondary cited references teach adhesive compositions, not rubber mixtures which are vulcanizable. Applicants also submit that the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient to establish prima facie obviousness.

Applicants submit, one reason why it is "unobvious" to add an isocyanate to a rubber compound which contains accelerators etc. (but no gel) is the reduction of the compound shelf life (compound safety) or the reduction of scorch time (premature vulcanization) by multifunctional isocyanates.

Applicants submit it is well known that even at ambient temperature, isocyanates react very rapidly with chemical compounds which contain functional groups such as -OH, -NH2, -NRH, -COOH and the like. In rubber compounds the reduction of compound safety, or the reduction of compound shelf life or premature vulcanization is a real problem especially as water and other impurities are not rigorously excluded. The scorch problem is even more increased as vulcanizations are usually performed at temperatures well above ambient temperature (the vulcanization temperature applied in the examples of the present invention is 160°C). Therefore, Applicants submit it is not obvious to combine multifunctional isocyanates with sulfur cure systems (even at times during which gel was not available).

Due to the technical prejudice described above, there was no state of the art which prompted Applicants to add multifunctional isocyanates to gel containing rubber compounds to be vulcanized at temperatures >120°C. In order to elucidate the reduction of scorch times by multifunctional isocyanates in the examples given in series A, B, C and D of the present invention, t_{10}-values have been determined. t_{10} values give a measure of the time required to achieve 10% of the final state of cure. Therefore, t_{10} gives a measure of premature vulcanization. If t_{10} is reduced, the safety of the compound is reduced.

As can be seen in the examples of series C, the addition of various amounts of isocyanate reduces t_{10} from 5.04 min (without isocyanate) by only 62% (highest reduction in this series) to only 1.93 min. Even though a hydroxyl-modified gel is present in series C, this reduction is so moderate that the "smallness" of the scorch reduction is not at all obvious and totally surprising. In series D the addition of 5 phr of various multifunctional isocyanates even result in increases of t_{10} values from 5.04 min (reference compound without isocyanate) to 6.53 min: 8.26 min and 8.43 min. These increases of t_{10} values are totally surprising.

Accordingly, as discussed above, Applicants submit there is no motivation to combine the cited references to arrive at the surprising invention.

Therefore, Applicants request withdrawal of this ground of rejection.

Respectfully submitted,

By _____
Jennifer R. Seng
Attorney for Applicants
Reg. No. 45,851

LANXESS Corporation
Law & Intellectual Property Department
111 RIDC Park West Drive
Pittsburgh, Pennsylvania 15275-1112
(412) 809-2233
FACSIMILE PHONE NUMBER:
(412) 809-1054

\sr\S:\Law Shared\SHARED\JRS\PATENTS\5842\secondresponse&amendment 4-29-05.doc